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E-books and Emergent Literacy in Early Childhood Settings: Research-to-Policy Resources

There has been a dramatic increase in young children's access to and use of media on mobile devices (such as smartphones, tablets etc.) and children are becoming familiar with these devices at a younger age (Common Sense Media, 2013). Electronic books or e-books are one example of interactive media that are being used by young children. E-books are books that have been converted into a digital format and include text, audio, images, animations, and other features and can be displayed on a computer screen or other handheld device (Parette, Blum, & Luthin, 2015). Children are engaging more with digital texts in the form of e-books both at home and in early childhood settings as the number and availability of electronic books has grown over time (Bus, Takacs, & Kegel, 2015).

In recognition of a growing use of technology by young children, NAEYC and the Fred Rogers Center for Early Learning and Children's Media issued a joint statement in 2012 emphasizing the need for interactive media and technology to be used "within the framework of developmentally appropriate practice to support learning goals established for individual children" (National Association for the Education of Young Children, & Saint Vincent College, Fred Rogers Center for Early Learning and Children's Media, 2012). The statement further highlighted the issue of equity and access for all children, given that disparities exist in access and use of technology based on socioeconomic status (Janisse, Li, Bhavnagri, Esposito, & Stanton, 2018). Associated with these disparities, children from more affluent families often have more advanced technology and digital literacy skills before they begin school. Using tools like e-books in a developmentally appropriate way in early childhood settings could offer an opportunity to address disparities in access and in early literacy skills.



Emergent or early literacy refers to a range of skills in the domains of oral language, phonological awareness, and print and letter knowledge that serve as precursors to conventional reading and writing (National Center for Family Literacy, National Early Literacy Panel, & National Institute for Literacy (U.S.), 2008). Past research has found that shared-reading interventions can improve oral language and print knowledge of young children. Whether the use of e-books confers the same benefits is an issue that researchers are beginning to explore (National Center for Family Literacy et al., 2008). Some of the topics that have been addressed so far in the literature include: how children engage with e-books in early childhood settings; which features of e-books can contribute to specific emergent literacy skills; whether e-books can be effective in promoting emergent literacy skills with specific populations (for example, children at risk for learning disabilities, English Language Learners); and whether there are differences between e-books and print books in promoting emergent literacy skills.

This resource list includes research on the effects of e-books on emergent literacy in early childhood settings from 2010 to the present. The focus of this resource list is on the use of e-books in early childhood settings, some of the literature reviews and syntheses below also include studies of parents' use of e-books. While not included in this list, there is also a body of research focused on parents' use of e-books with their children in the home (Chiong, Ree, Takeuchi, & Erickson, 2012).

Resources are grouped under the following headings:

- Literature reviews and syntheses on e-books and emergent literacy
- U.S. studies:
 - How children engage with e-books
 - Effects of e-books on emergent literacy skills
 - Effects of e-book use on specific populations
 - Comparing the effects of e-books versus print books in promoting early literacy
- International studies:
 - Effects of e-books on emergent literacy skills
 - Effects of e-book use on specific populations
 - Comparing the effects of e-books versus print books in promoting emergent literacy skills

Literature Reviews and Syntheses on e-books and emergent literacy

Bus, A. G., Takacs, Z. K., & Kegel, C. T. (2015). Affordances and limitations of electronic storybooks for young children's emergent literacy. *Developmental Review*, 35, 79-97.

Guernsey, L., & Levine, M. H. (2016). Getting smarter about e-books for children. *YC: Young Children*, 71(2), 38-43.

Hoffman, J. L., & Paciga, K. A. (2014). Click, swipe, and read: Sharing e-books with toddlers and preschoolers. *Early Childhood Education Journal*, 42(6), 379-388.

Miller, E. B., & Warschauer, M. (2014). Young children and e-reading: Research to date and questions for the future. *Learning, Media and Technology*, 39(3), 283-305.

Moody, A. K. (2010). Using electronic books in the classroom to enhance emergent literacy skills in young children. *Journal of Literacy and Technology*, 11(4), 22-52.

Morgan, H. (2013). Multimodal children's e-books help young learners in reading. *Early Childhood Education Journal*, 41(6), 477-483.

Neumann, M., & Neumann, D. L. (2017). The use of touch-screen tablets at home and pre-school to foster emergent literacy. *Journal of Early Childhood Literacy*, 17(2), 203-220.

Neumann, M., Finger, G., & Neumann, D. L. (2017). A conceptual framework for emergent digital literacy. *Early Childhood Education Journal*, 45(4), 471-479.

Reich, S., Yau, J. C., & Warschauer, M. (2016). Tablet-based eBooks for young children: What does the research say?. *Journal of Developmental and Behavioral Pediatrics*, 37(7), 585-591.

Salmon, L. G. (2014). Factors that affect emergent literacy development when engaging with electronic books. *Early Childhood Education Journal*, 42(2), 85-92.

U.S. studies:

How children engage with e-books

Roskos, K., Burstein, K., Shang, Y., & Gray, E. (2014). Young children's engagement with e-books at school: Does device matter?. *SAGE Open*, 4(1), 1-9.

Roskos, K., Burstein, K., & You, B. (2012). A typology for observing children's engagement with eBooks at preschool. *Journal of Interactive Online Learning*, 11(2), 47-66.

Effects of e-books on emergent literacy skills

Broemmel, A., Moran, M., & Wooten, D. A. (2015). The impact of animated books on the vocabulary and language development of preschool-aged children in two school settings. *Early Childhood Research & Practice*, 17(1).

Estevez-Menendez, M., An, H., & Strasser, J. (2015). *The effects of interactive multimedia iPad e-books on preschoolers' literacy*. In H. An, S. Alon, & D. Fuentes (Eds.), *Tablets in K-12 education: Integrated experiences and implications* (pp. 139-155). Hershey, PA: Information Science Reference.

Kelley, E. S., & Kinney, K. (2017). Word learning and story comprehension from digital storybooks: Does interaction make a difference?. *Journal of Educational Computing Research*, 55(3), 410-428.

Roskos, K., & Burstein, K. (2012). Descriptive observations of ebook shared reading at preschool. *Journal of Literacy and Technology*, 13(3), 27-57.

Roskos, K., Sullivan, S., Simpson, D., & Zuzolo, N. (2016). E-books in the early literacy environment: Is there added value for vocabulary development?. *Journal of Research in Childhood Education*, 30(2), 226-236.

Effects of e-book use on specific populations

Leacox, L., & Jackson, C. (2014). Spanish vocabulary-bridging technology-enhanced instruction for young English language learners' word learning. *Journal of Early Childhood Literacy*, 14(2), 175-197.

Comparing the effects of e-books versus print books in promoting emergent literacy

Moody, A. K., Justice, L. M., & Cabell, S. Q. (2010). Electronic versus traditional storybooks: Relative influence on preschool children's engagement and communication. *Journal of Early Childhood Literacy*, 10(3), 294-313.

Neuman, S. B., Wong, K. M., & Kaefer, T. (2017). Content not form predicts oral language comprehension: The influence of the medium on preschoolers' story understanding. *Reading and Writing*, 30(8), 1753-1771.

International studies:

Effects of e-books on emergent literacy skills

Ihmeideh, F. (2014). The effect of electronic books on enhancing emergent literacy skills of pre-school children. *Computers & Education*, 79, 40-48.

Smeets, D. H., & Bus, A. G. (2015). The interactive animated e-book as a word learning device for kindergartners. *Applied Psycholinguistics*, 36(4), 899-920.

Strouse, G. A., & Ganea, P. A. (2016). Are prompts provided by electronic books as effective for teaching preschoolers a biological concept as those provided by adults?. *Early Education and Development*, 27(8), 1190-1204.

Effects of e-book use on specific populations

Korat, O., & Blau, H. (2010). Repeated reading of CD-ROM storybook as a support for emergent literacy: A developmental perspective in two SES groups. *Journal of Educational Computing Research*, 43(4), 445-466.

Shamir, A., & Shlafer, I. (2011). E-books effectiveness in promoting phonological awareness and concept about print: A comparison between children at risk for learning disabilities and typically developing kindergarteners. *Computers & Education*, 57(3), 1989-1997.

Comparing the effects of e-books versus print books in promoting emergent literacy

Evans, M., Nowak, S., Burek, B., & Willoughby, D. (2017). The effect of alphabet eBooks and paper books on preschoolers' behavior: An analysis over repeated readings. *Early Childhood Research Quarterly*, 40, 1-12.

Korat, O., & Segal-Drori, O. (2016). E-book and printed book reading in different contexts as emergent literacy facilitator. *Early Education and Development*, 27(4), 532-550.

Richter, A., & Courage, M. (2017). Comparing electronic and paper storybooks for preschoolers: Attention, engagement, and recall. *Journal of Applied Developmental Psychology*, 48, 92-102.

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- Common Sense Media. (2013). *Zero to eight: Children's media use in America 2013*. San Francisco, CA: Common Sense Media.
- Janisse, H., Li, X., Bhavnagri, N. P., Esposito, C., & Stanton, B. (2018). A longitudinal study of the effect of computers on the cognitive development of low-income African American preschool children. *Early Education and Development*, 29(2), 229-244.
- National Association for the Education of Young Children, & Saint Vincent College, Fred Rogers Center for Early Learning and Children's Media. (2012). *Technology and interactive media as tools in early childhood programs serving children from birth through age 8: A joint position statement of the National Association for the Education of Young Children and the Fred Rogers Center for Early Learning and Children's Media at Saint Vincent College*. Washington, DC: National Association for the Education of Young Children.
- National Center for Family Literacy., National Early Literacy Panel., & National Institute for Literacy (U.S.). (2008). *Developing early literacy: Report of the National Early Literacy Panel: A scientific synthesis of early literacy development and implications for intervention*. Washington, DC: National Institute for Literacy.
- Parette, H. P., Blum, C. H., & Luthin, K. (2015). A quantitative features analysis of recommended no- and low-cost preschool e-books. *Early Childhood Education Journal*, 43(3), 181-190.

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